

# HÖTTTEST

# FF-Roaders

# FOR '88

by the RADIO CONTROL  
CAR ACTION STAFF



'87 WAS A FIERCELY COMPETITIVE YEAR—  
LET'S KEEP AN EYE ON THESE  
HOT ONES IN '88!

**I**N THE LAST FEW YEARS we've seen a remarkable growth in the R/C market, and this has prompted the same remarkable growth in racing facilities nationwide. The racing crowds have grown larger and louder, are receiving more recognition from media of all kinds and their research is going into the off-road cars of tomorrow. With this in mind, we at Radio Control Car Action have taken a look at the stars of the past and anticipate some stars of the future.



## TWO-WHEEL DRIVE

## FOX

The Tamiya Fox may not be the most likely contender, but the Fox is the one car in the Tamiya stable that has given many racers a solid victory at many tracks across the country. Many of the trick racing component manufacturers must feel the same way due to the number of aftermarket trick parts available for the Fox. Let's not rule out the potential of the Fox, which just might be the slyest of contenders.

The Fox utilizes double-wishbone four-wheel-independent suspension with fully adjustable

dampers. It includes precision ball bearings for ultimate performance and an ABS-resin monocoque frame to protect valuable mechanisms

from shock and debris. It has slender styling and the swiftness of a fox on the run.



## ULTIMA

This entry from the Kyosho factory is now the reigning IFMAR 1/10-scale world champ. Need we say more?

With Team Trinity's Joel Johnson at the wheel the Ultima dominated the World Championships in Romsey, England, finishing not just first but also capturing second and third. There is no denying that this car is one of the hottest off-rollers of '88.

The Ultima is super-lightweight for quick acceleration. It features long suspension travel for top handling on the roughest tracks, independent suspension on all four wheels, a true gear differential and strong aluminum and nylon parts. A quality design for quality performance.

## RC10

The Associated RC10 is no doubt still one of the hottest off-rollers, and no doubt will be hot in '88. The RC10 probably has the winningest record in off-road history; it has at one time or another held all the championship honors and you can never rule out its regaining any of those crowns.

The RC10's rugged yet light suspension gives you all the adjustability of a full-size race buggy. It has exceptional ground clearance and a low center of gravity, rendering superb balance for racing on any terrain. The RC10



comes standard with the Associated custom racing shocks, fully adjustable four-wheel

suspension, a T6 aircraft-aluminum chassis tub and the famous Team Associated stock motor.



## FOUR-WHEEL DRIVE



### OPTIMA

Time after time the Optima has proven itself to be one of the hottest. The titles are many; this

performer is and will be a top contender for the crown of its choice. Whether racing in stock, modified, or the heavy-metal class, the Optima is among the leaders.

The Optima is designed for performance with its true gear differentials front and rear, shielded chain drive, extra-long wishbones for negligible-bump steering, high ground clearance and long suspension travel. It features oil-filled shocks on all four wheels, high-strength aluminum and glass-filled nylon parts and perfect 50-50 weight distribution for that winning edge.

### YOKOMO SE

With titles such as the 1986 IFMAR World Champion Winter Nationals in Florida, Trinity Shoot Out, and the ROAR Nationals in Pomona, California, under its belt, there is no denying that this off-roader will be a contender.

The Yokomo SE includes the Yokomo stock motor, with 14-tooth brass pinion gear, improved slipper, low front suspension arms with improved front-end geometry. With a 1:1 front drive ratio, steel shaft transmission gears, a set of heavy-duty rear trailing arms and a lightweight fiberglass chassis.



### SCHUMACHER CAT

This is the reigning 1987 IFMAR World Champion in  $\frac{1}{10}$ -scale 4WD. As yet the unsung force here in the U.S. due to availability, we're sure that the Cat's great off-road success in 1987 will bring this performer to the forefront in 1988.

It features shocks front and rear, full ball bearings, quick-change wheels, long suspension travel, front and rear sway bars and a design with the serious racer in mind. This is a British-grown product for those who want one thing: to win.



## FOUR-WHEEL DRIVE



### AYK RADIANT

With victories like the Trinity Dirt Shootout and past SCORE Heavy Metal Champion, the Radiant shouldn't be taken lightly. The Radiant provides the lightness and handling ability it takes to be champion. Vast improvements in the Radiant's chassis, differential and drive system will make sure the top contenders don't edge the Radiant.

### PARMA MINI-MUSTANG

Domination of the Cleveland NORCAR series has made everyone take a second look at the Mini-Mustang. This off-roader is a force to be reckoned with; it's running strong in many events and is a potential entry for the winner's circle wherever it goes.

The Mini-Mustang features a two-speed automatic gearbox, single-belt secondary drive system, genuine bevel-gear differentials front and rear, and quick-change battery location. It is available as two-wheel and four-wheel drive.



### DOMINATOR

This one is designed for the off-road oval tracks and is living up to its name. Oval track records are falling left and right, and championships like the East Coast Oval are being

totally overwhelmed by this hi-tech machine. Nothing will stand in its way in 1988 for attaining all oval track championships. Pure predation is the only way to describe its exploits.

The Dominator features carbon-fiber chassis components, stainless-steel ball bearings, hardened drive axles, Delta pressurized shocks, drag-link steering, and fully adjustable independent suspension. It has the lowest power-loss drive system possible with over 100 gear ratios and a high-tensile-steel chain. The Dominator was born to win. ■



by MIKE "SAMURAI" LEE

**L**EGEND HAS IT that in the days of feudal Japan a tough and highly trained little fighter was developed called the Ninja, the cloak of darkness. He was not seen unless he wanted to be. Surprise was his best ally, and his swift, lightning-like attacks meant instant defeat to those who were his victims. For the most part, the Ninja has disappeared with the modernization of

FROM MODEL EXPO

his Far Eastern neighbors. That is, up until now. The war in the dirt has once again called forward a tough and swift fighter.

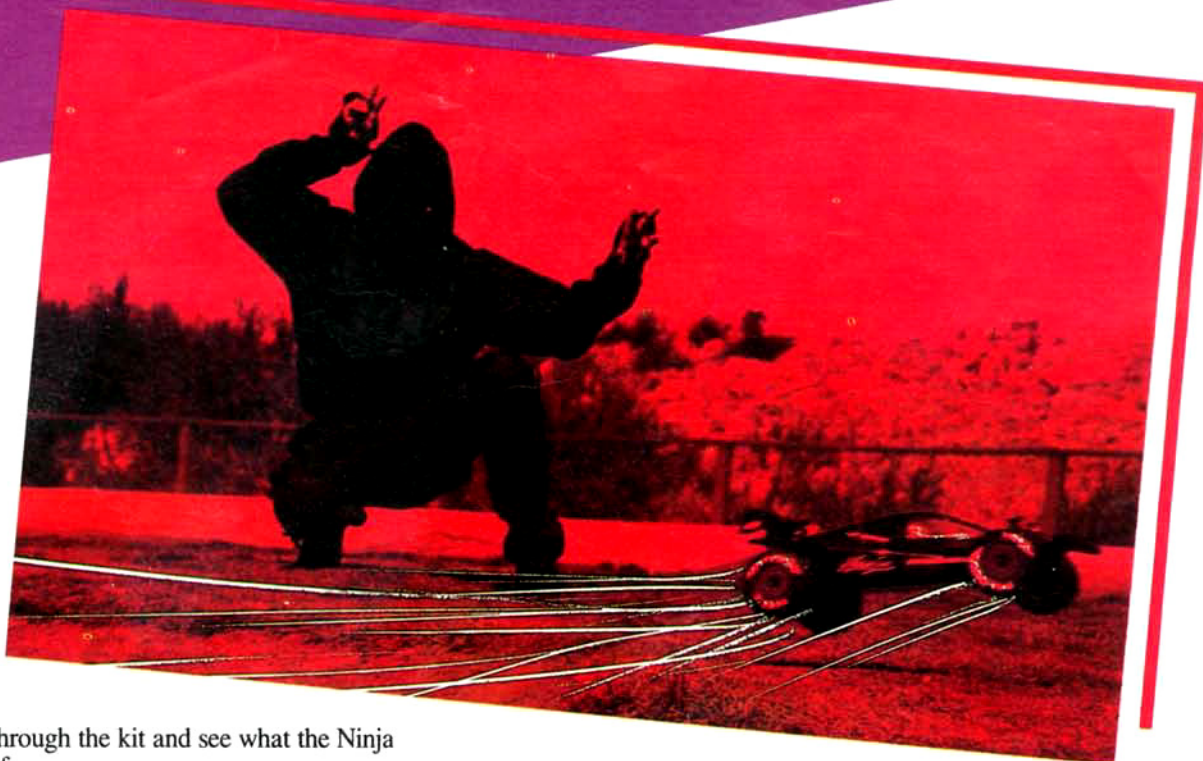
The Ninja is the latest 4WD vehicle from Marui\*, which has other vehicles for off-road fans. The Ninja features a shaft-driven power-drive system, full-time four wheel drive, gear differential at both axles, tub chassis, four-point oil-dampened suspension and a slick aerodynamic body. Made to handle the toughest tracks, the Ninja is well built.

Track Report



A 4WD shaft-driven legend—  
will it live up to its namesake?

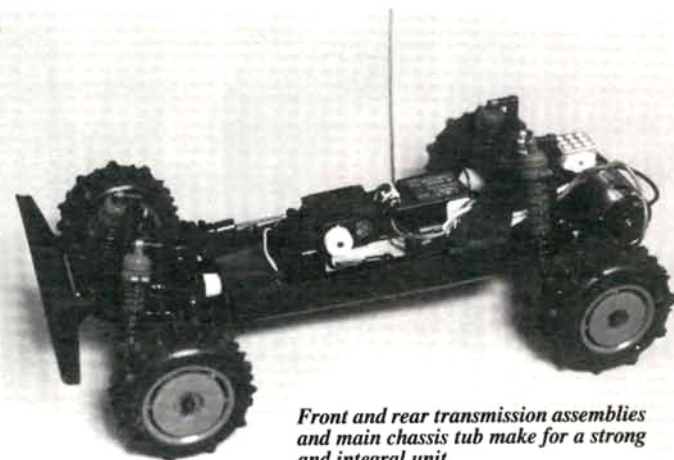




Let's go through the kit and see what the Ninja is made of.

THE KIT begins with the rear and forward gear boxes. The kit layout is such that all parts are numbered and grouped for easy identification. Small parts are sorted by bags in a familiar fashion. Both rear and forward transmissions feature a full differential made from nylon gears. All gears and shafts are carried in nylon bushings, which means that ball bearings can certainly be used for more efficient operation.

From the rear tranny, a shaft drive line will join to the forward tranny to provide the necessary urge up front. The shaft is a piece of tempered piano wire that is supported save for the transmission



*Front and rear transmission assemblies and main chassis tub make for a strong and integral unit.*



*Ninja displays good balance for a 4WD car as displayed in this jump.*

drive cups.

The rear tranny will also be the base for the rear suspension. The Ninja features a twin-wishbone rear suspension arm that is very strong. At the end of that arm will be the axle hubs. These have caster control arms to provide ride adjustment height at the wheel. Simple threaded rods with ball joints are effective in providing this adjustment.

Shock towers are mounted next to the rear end, followed by the RS-5540 motor. The

*(Continued on page 152)*



## TROUBLESHOOTING

(Continued from page 62)

need for installation. Whichever route you choose, the handling of your Grasshopper will be a lot more responsive.

By adding the heavy-duty tie rod set, the stock ball-and-cup assembly (that's standard equipment on the Grasshopper/Hornet) will no longer pop off. The heavy-duty assembly is a hiem-type fitting on a 4-40 rod, which is secured to the steering arms and servo-saver with a screw and nylon lock nut. Your troubles with steering loss because of tie rods popping loose are over.

With some of these basic hop-up tips in place, the other area that many Grasshopper owners have expressed concern over is the lack of flexibility with gear ratios because of the Grasshopper/Hornet fixed gears. Well, not to worry, there's a solution that's simple and will give you an opportunity to change the gear ratio.

CRP makes an adjustable motor mount for the Frog/Brat Lancia (part No. 2107). This same motor mount can be used on the Grasshopper and Hornet. It allows you to add a 19-tooth pinion on

the high side, and a 15-tooth pinion on the low side (you might be able to go lower, but I haven't gone below 15). This is a two-piece plate that sits between the motor and the gear box, and gives the motor the pivot necessary to change gears. Make sure you move the pinion gear further out on the motor shaft to allow for the thickness of this plate. If the stock motor-mount screws don't reach, all you have to do is take a scrap piece of Lexan and replace the gear box cover that's opposite the motor with it.

This new gear box cover/window will also give you a chance to see proper pinion and drive gear spacing, which you cannot do with the stock cover. Now you can surprise those Hornets that used to eat up your Grasshopper, by putting some additional top-end speed, or some nasty low-end torque.

I hope this will help the many R/C entry-level cars that may someday be future World Champions.

Good luck and happy motoring.

*\*The following are the addresses of the companies mentioned in this article:*

Model Rectifier Corp., 2500 Woodbridge Ave., Edison, NJ 08817.

Parma International, 13927 Progress Park-

way W., North Royalton, OH 44133.

McCallister Racing, 4827 Top Circle, Simi Valley, CA 93063.

Custom Racing Products, 3250 El Camino Real, Atascadero, CA 93422. ■

## RACE STRATEGY

(Continued from page 11)

saves a lot of cleaning between race days.

Check your radio (the electrics and speed controller) carefully and fix any loose connections. Make sure your radio is sealed against dust and mud, and is padded against the jolting these cars take. Clean the speed controller and lube it if it's the mechanical type.

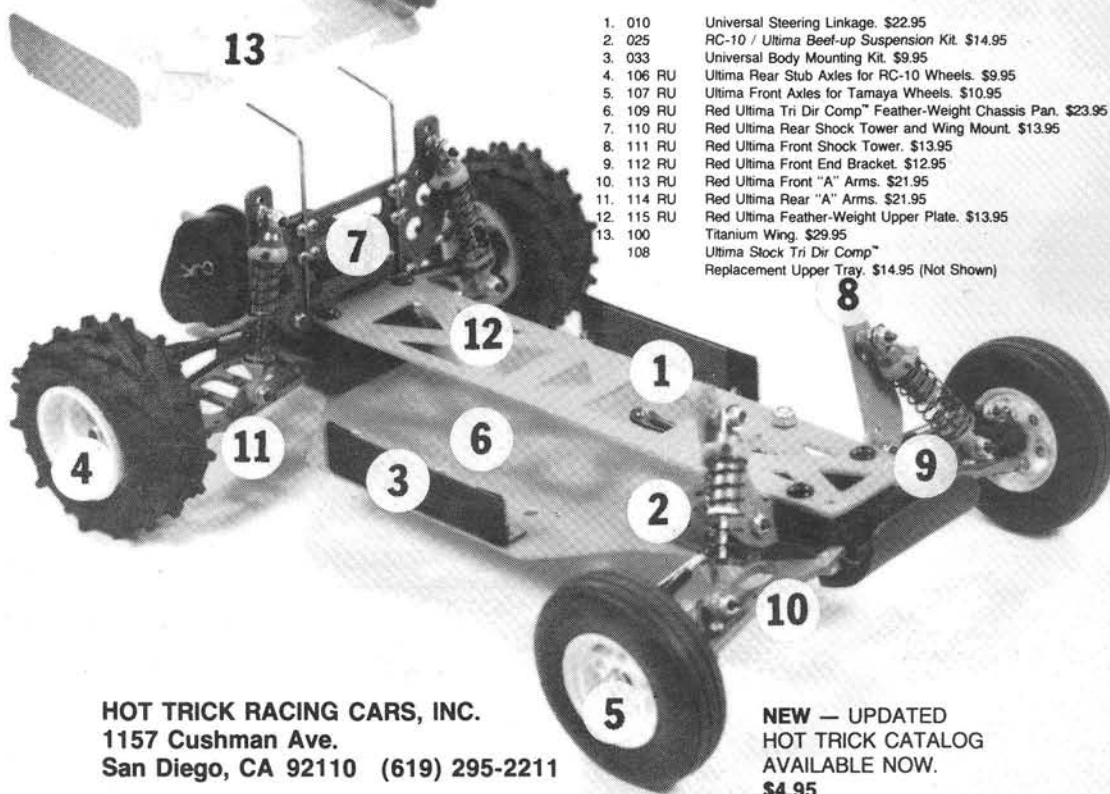
While you're at it, range-check the car by setting it up on a large coffee can so the wheels are clear of the ground.

Check the range with the throttle off and then with the motor running. If the steering goes crazy whenever you hit the throttle, replace or add motor capacitors.

Also clean the motor and check the brushes to make sure they're making contact correctly. Inspect the brush springs to see if they're strong enough. I unhook mine between race days and

(Continued on page 90)

## WHEN IS AN ULTIMA NOT AN ULTIMA? WHEN IT'S A HOT TRICK RED ULTIMA!



|            |                                                                        |
|------------|------------------------------------------------------------------------|
| 1. 010     | Universal Steering Linkage. \$22.95                                    |
| 2. 025     | RC-10 / Ultima Beef-up Suspension Kit. \$14.95                         |
| 3. 033     | Universal Body Mounting Kit. \$9.95                                    |
| 4. 106 RU  | Ultima Rear Stub Axles for RC-10 Wheels. \$9.95                        |
| 5. 107 RU  | Ultima Front Axles for Tamaya Wheels. \$10.95                          |
| 6. 109 RU  | Red Ultima Tri Dir Comp™ Feather-Weight Chassis Pan. \$23.95           |
| 7. 110 RU  | Red Ultima Rear Shock Tower and Wing Mount. \$13.95                    |
| 8. 111 RU  | Red Ultima Front Shock Tower. \$13.95                                  |
| 9. 112 RU  | Red Ultima Front End Bracket. \$12.95                                  |
| 10. 113 RU | Red Ultima Front "A" Arms. \$21.95                                     |
| 11. 114 RU | Red Ultima Rear "A" Arms. \$21.95                                      |
| 12. 115 RU | Red Ultima Feather-Weight Upper Plate. \$13.95                         |
| 13. 100    | Titanium Wing. \$29.95                                                 |
| 108        | Ultima Stock Tri Dir Comp™ Replacement Upper Tray. \$14.95 (Not Shown) |

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**W**HEN Kyosho introduced the Optima, off-road racing was quickly dominated by it. But recently, the Turbo Optima has appeared on the scene with some flashy changes and everyone wanted this dressed-up four-wheeler. Those of

by FRED MURPHY

## PROJECT

# OPTIMA

PART I

*A heavy-metal contender with an Option-House flair.*

you with the standard Optima suddenly felt left out. Kyosho knew you were going to feel that way and didn't forget the thousands of Optima owners who wanted that Turbo flare. And through the Option House line of Kyosho\* aftermarket parts, you can construct your own version of the Turbo Optima.

The starting point of Project Optima is the basic Optima kit and a Kyosho Pulsar 2000 radio system. From this point, I'll put together an off-road performer that just might have your Turbo Optima friends asking you about your machine, instead of you asking about theirs.

After carefully reviewing the list of Option House components for the Optima the choice for the project car was as follows: a complete bearing set, a pair of gold short-front shocks, a pair of gold long-rear shocks, a gold chassis set, side guards, a set of low-







profile tires, and a LeMans 240SB modified motor with the Option House motor guard. From here, the Optima construction is per the manual, replacing the appropriate parts with Option House parts.

Outside of the Kyosho components used in the project

car, I used an electronic speed control from Aristo-Craft\*, a set of motor connectors from Sermos R/C\*, a set of aluminum wheels from Tecnacraft\*, a body-mounting kit from Parma\*, and a Datsun pickup body from McCallister\* painted with Pelican Top Color

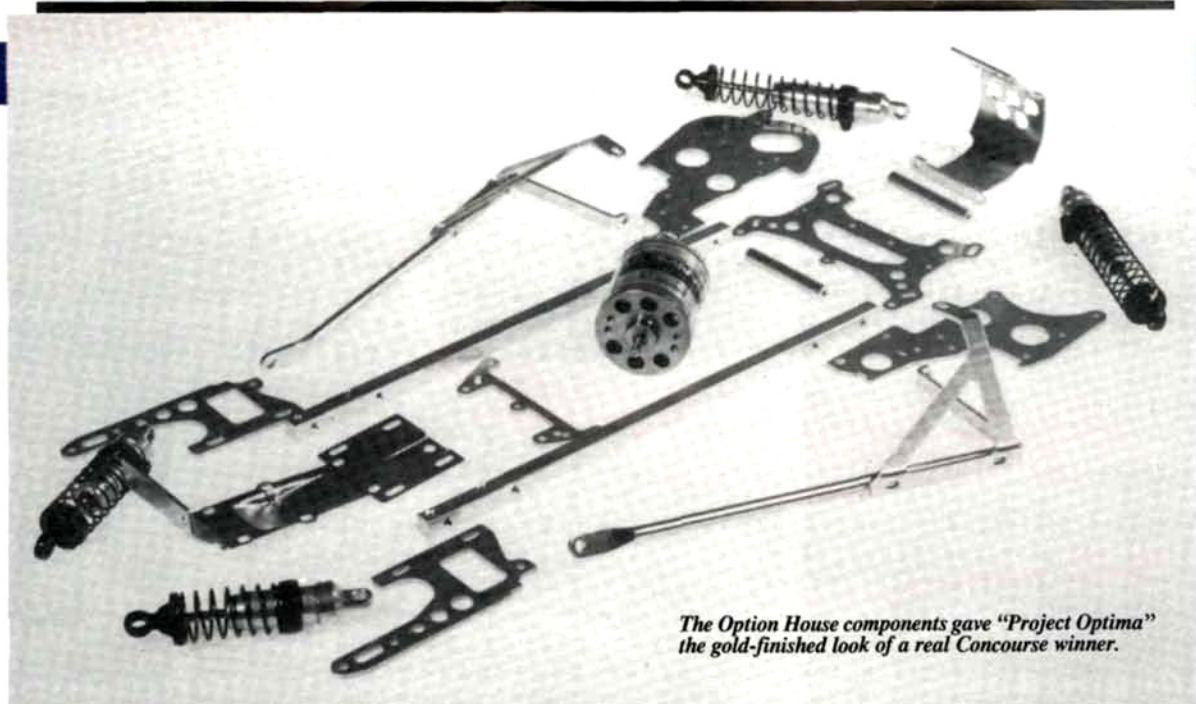
paints from Koh-i-Noor\*. The final result is a hot-looking Heavy Metal contender.

All the Option House components fit like a glove with absolutely no modification. Let's keep in mind that this part of Project Optima might not be the lightest way to go, but it will bring out the Turbo in your Optima. The gold components really make for a great eye-catcher. With all the Option House parts in place, I dropped in the Kyosho Pulsar 2000 radio system and the Aristo-Craft SP-204OR speed control, which is an affordable alternative to the big buck units that the pros are using. The drawback with this control was its lack of brake. Although braking can be obtained by lightly hitting reverse. The powerplant is the LeMans 240SB (the Turbo-Optima motor). This motor is a very nice power provider for the Optima, and has great torque, but keep in mind it has only a 4-minute running time. In the track test it was 4 minutes on the nose. (Remember Kyosho's running time secret with their motor numbers? 360ST yields 360 seconds; 240SB yields 240 seconds, etc.)

photos by LOUIS V. DeFRANCESCO, JR.



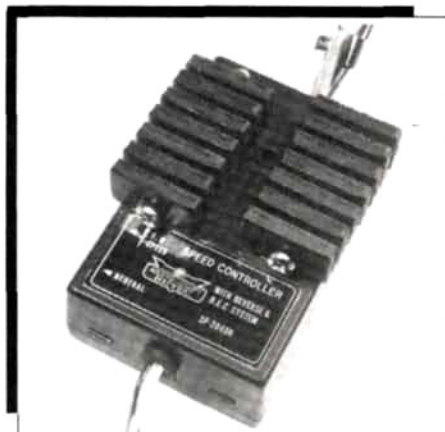




*The Option House components gave "Project Optima" the gold-finished look of a real Concourse winner.*

The final Project Optima dressing came from Tecnacraft with a set of (get this) three-piece aluminum wheels that are the closest thing to a set of Cragar wheels I've ever seen. I understand that this is only the beginning of their offerings, so let's keep an eye on these wheels.

The body is the McCallister Datsun pickup truck, which is seen in many of the Heavy Metal class races. The paint is a product from Pelican



*The Aristo-Craft SP-2040R speed control gave Project Optima ample forward and reverse capabilities.*

called Top Color. It's an enamel that's easily cleaned and thinned with water. Its adhering properties to Lexan surprised me as much as it surprised Koh-i-Noor, the folks that manufacture the product. It went on with ease and dried like concrete.

Mounting the body was made simple by using a Parma mounting kit designed for the Frog. The two rear mounts bolted right onto the Optima

shock towers, and the front mount was attached to the front bumper by drilling one small hole and using the kit-provided mounting screw.

The track test was a flying success! Project Optima handled the toughest jumps with tremendous authority, even with the great weight disadvantage. By the way, project Optima weighed in at a whopping 4 pounds, 7 ounces; a little heavy to keep up with the light trick cars (which I'll address in the next part of Project Optima).

The track was very dry and hard, but the Optima went through its paces like a champ. It handled the hardest of cornering with very little slide (considering that the track was very dry) and powered its way down the straightaway with good authority. Maybe it was the Option House low-profile tires. Or maybe it was the little bit of

*(Continued on page 106)*



*The finely machined three-piece wheels from Tecnacraft will put the full scale Cragar look under your off-roader.*







# Track Report

**A**BOUT TWO YEARS ago I heard about a four-wheel-drive car that was billed by many racers as the most unfair oval track car anyone ever had the misfortune of racing against. It was a custom-built race car and was showing up in the race results as the "Landgraff." What in the world is a Landgraff? I found out that Jerry and Brian Landgraff had custom-built this vehicle that was ripping up every oval track they set it down on. The rumor mill had this four-wheel-drive racer breaking track records by one, two, three, four, and even more laps. The key to this whole saga was that the Landgraff was custom-built and the price was also custom—custom enough to make anyone choke up over \$1,000. On the other hand, I guess that for that kind of money this machine should be breaking every track record in sight and then some.

Since that time the tremendous success of the Landgraff car and public demand have enticed the Landgraffs to introduce the Dominator IV. With two years of painstaking research and development on the car that has become the ruling force in four-wheel-drive oval racing nationwide, Jerry and

Brian Landgraff unveil a race car that does not need anything more than a radio system, batteries, and a motor to break a record. The Dominator IV is billed as the most complete, true race car ever built for 1/10-scale competition. I might add that with the track record this car has behind it, it is confidently billed as "the

## WHEN IT COMES TO DIRT OVAL







## G, THE NAME SPEAKS FOR ITSELF.

finest."

The Dominator IV kit features the best of all worlds in one box. The chassis is carbon fiber, as are the chassis top plate and rear-body mount plate. The kit also includes a complete set of stainless-steel ball bearings, hardened drive axles, a fully adjustable four-wheel independent suspension. Delta pressurized shocks, and a very efficient drag

link steering system with turnbuckle-ball cup tie rods. The drive system includes a high-tensile-steel chain that is part of the lowest power-loss drive assembly possible. This drive system is so flexible that it gives you the ability to work with over 100 gear ratios. The assembly manual even includes a gear ratio chart to help you get rolling with a ratio anywhere from 4.95 to 12.15. As a side note, the Dominator IV could also be as impressive on a hard-surface road course with the optional ball-type differential and foam tires because of the great flexibility in repositioning the batteries to achieve chassis balance. The kit also includes a sleek open competition Camaro Lexan body to add the final touch.

At first glance the chassis plate is obviously carefully designed with oval racing in mind. There are a total of eleven slots cut in the chassis for sub-C cell placement. Seven of these slots are on the left side of the car, with four on the right side in case you have to shift weight. But as any hard-core racer should know, the more weight you have on the left side for left-hand oval racing the better off



photos by LOUIS V. DeFRANCESCO, JR.



you'll be. The double swing arm suspension assemblies allow for a nice, low ride height, but allow the flexibility of changing ride height to suit track conditions by positioning the Delta shocks at various angles. The only weak link in the entire suspension system, if there is one, is the vulnerability of the swing arms if they were to be hit by another car. But I suppose if that is the only damage done in a major collision, I'd consider it relatively minor after some of the total crippling some of my cars have been in. To change this component would take all of about three to five minutes due to the Dominator's simplistic design and accessibility for maintenance. As a matter of fact, the kit includes a fine set of hex drivers to help with general maintenance.

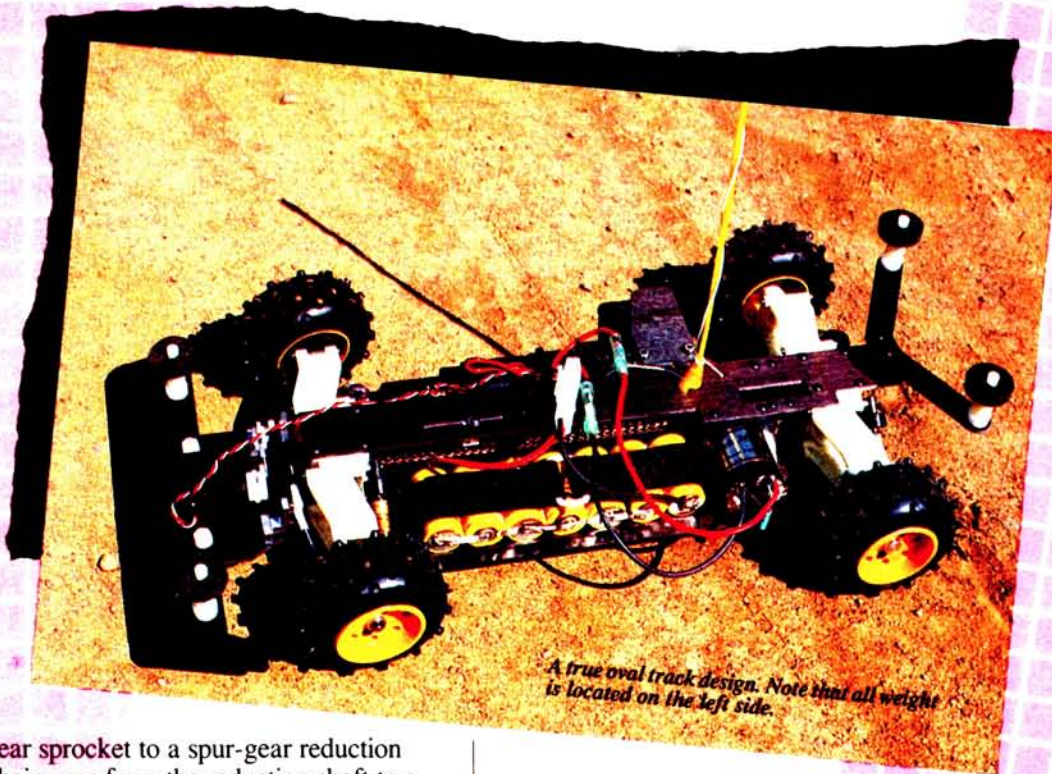
The chain-driven drive system is a two-part mechanism.

A small rear chain runs from a rear sprocket to a spur-gear reduction shaft. The second chain runs from the reduction shaft to a front sprocket. The spur gear is attached to the reduction shaft with all mentioned assemblies ball-bearing supported. It's simple and so efficient; why didn't we think of it? Well, I guess that's why the Dominator has been winning all the races—I haven't been—as a converted off-road lead sled. Differentials in oval dirt racing are a thing of the past. Even in 1/8-scale dirt oval, racers are finding there is no need to have a differential dragging down performance. It's not that anyone is cutting corners. They just want to provide you with the most efficient drive train possible. The front sprocket is then driving a set of one-way bearings in the front hubs for maximum control through the turns. It is beyond me why a lot of racers say that one-way bearings don't work. They certainly work in the Dominator and they also work in the Yokomo as its appearance in the winner's circle can attest to.

The steering assembly consists of a left and a right pivot arm connected by a drag link. This assembly is finely machined and well suited for performance in the Dominator. The steering servo is mounted in front of this assembly and the wheel-to-wheel front bumper very neatly protects everything.

For the track test I wired up a set of matched Sanyo batteries from Trinity\*, and installed a Futaba\* Magnum Sport radio using a FP-S35S mini-servo with metal gears,

and a Futaba MC-9 electronic speed control. The only choice left was the motor, which was specially wound for the Dominator IV by R/C Research Engineering. The Black Magic motor and seven matched Sanyos were itching to send this land missile on its way. With painted body on and all systems go, the



first stop before running the Dominator was the scales. The weigh-in was, what else, a perfect 3 pounds 8 ounces.

The initial pass around the local oval facility was a warm-up lap with speed gradually increasing with every lap. As the Dominator gained speed the acceleration coming out of the turns was almost scary. Going down the backstretch I got on the throttle hard and the third turn was on the car almost before I could react. The Dominator went deep into the turn with complete confidence as I started back on the throttle heading for the front stretch. The driving of this car was the most confidence-building experience I've ever encountered. The Dominator could be placed anywhere on the track and the response was thrilling. No matter how hard into the turn I drove, it was almost impossible to get into trouble. Lap after lap the Dominator covered ground with ease and at speeds I've never experienced

*(Continued on page 143)*







# MONSTER

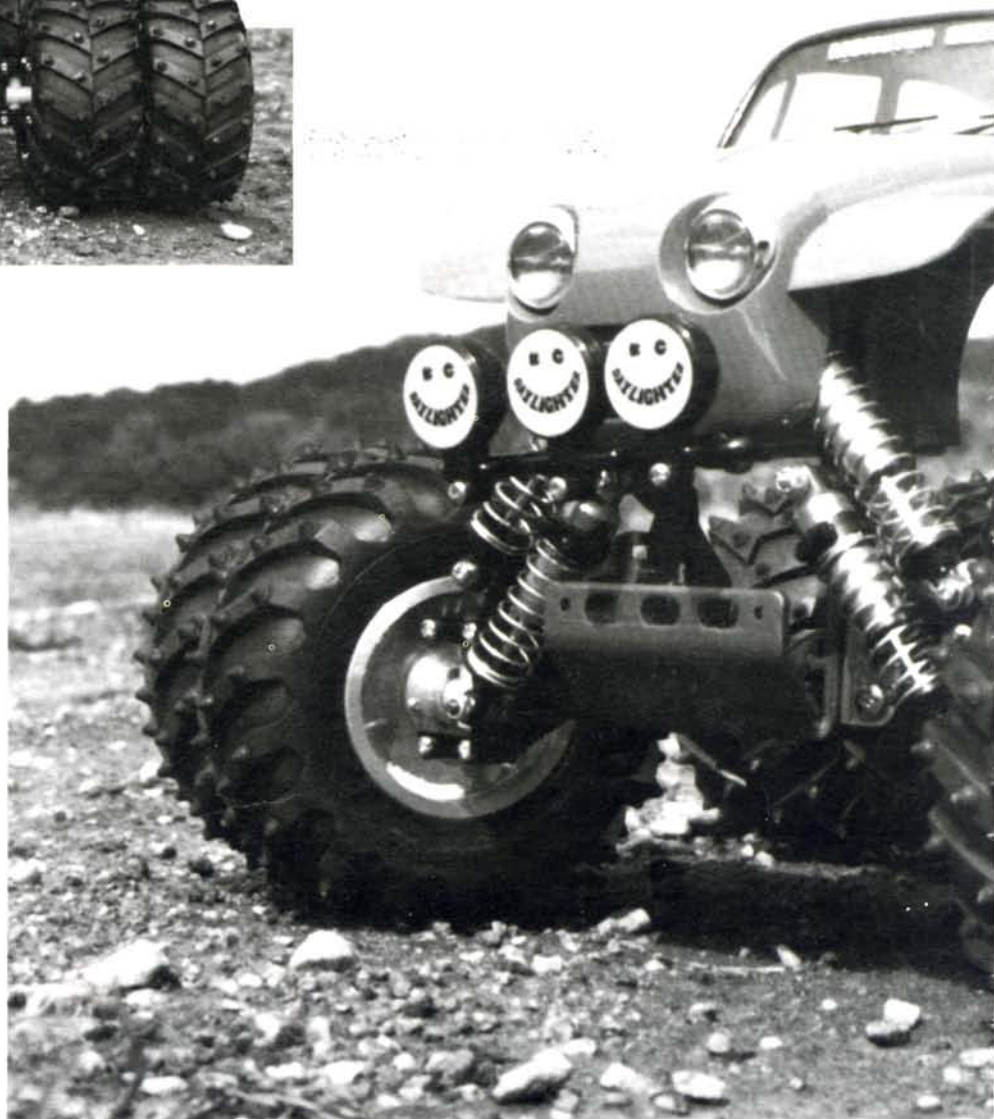


by STEVE POND

**I**N THE JUNE '87 issue of *Radio Control Car Action*, I did a track report on the MRC/Tamiya\* Monster Beetle. The Beetle was then (and still is) an admirable performer, not to mention my personal favorite as far as monster-type R/C vehicles are concerned. The Beetle kit is very straightforward during construction, mostly due to the fact that the parts count is held down to a reasonably low number. The chassis is derived from the versatile design of the Frog, with a few minor changes to allow the use of some updated components featured on the new Tamiya kits. To sum it up, the Monster Beetle combines simplicity and function.

Although the Monster Beetle was at the top of the list of car-crushers, I wanted to take it a step further and build the ultimate heavy-metal monster. After some careful research, I came up with a list of top components for the Monster Beetle that'd scare the hair off of even the toughest beast on the block.

The first (and most obvious) requirement for the transformation is a Monster Beetle kit. This doesn't mean you should rush out and buy a kit for the sole purpose of doing a



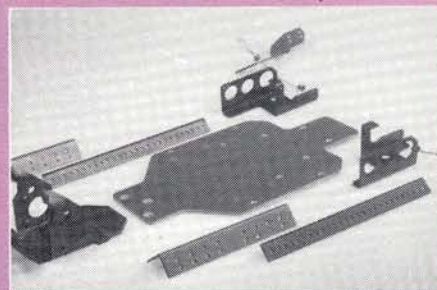
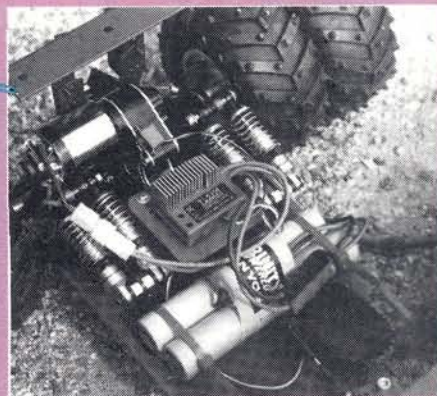
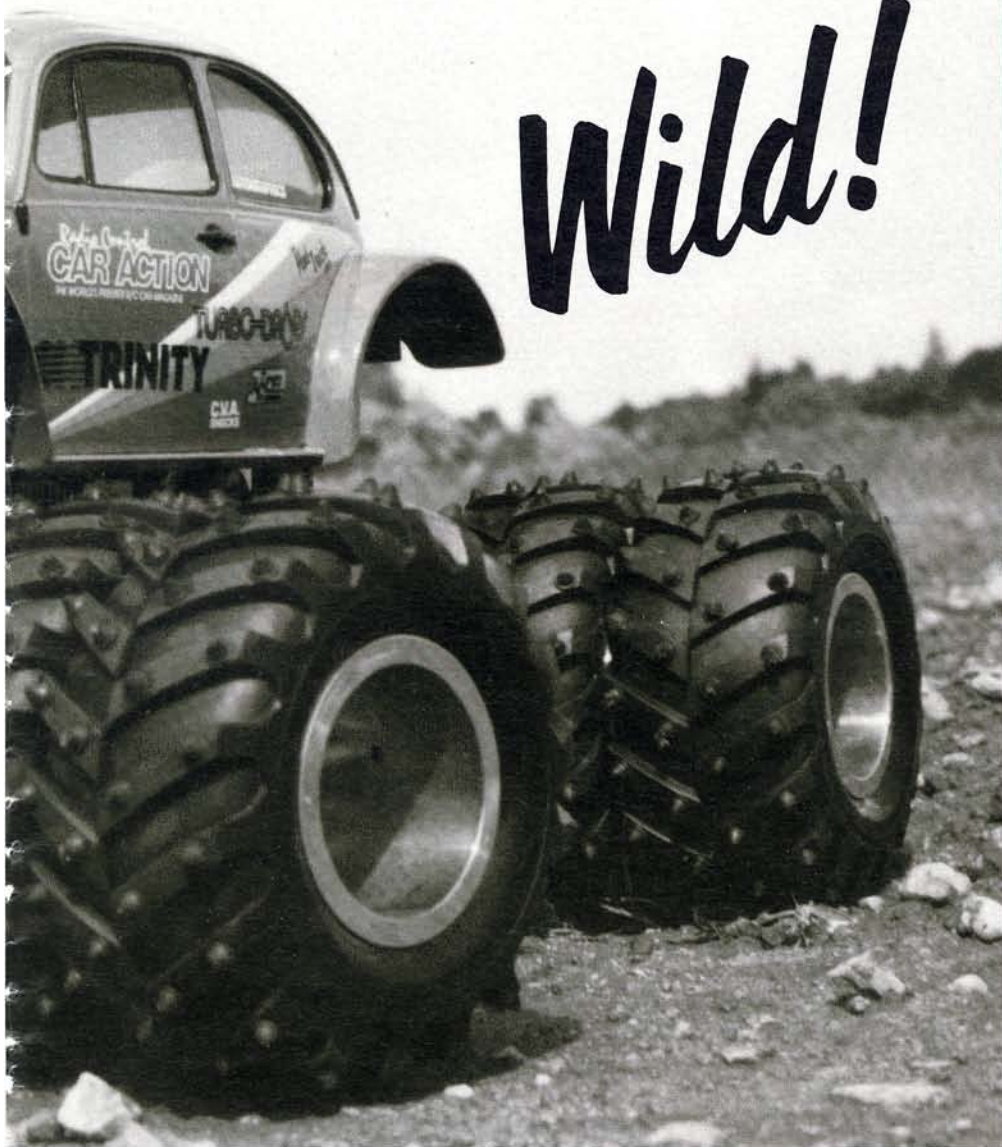
conversion such as this—you'd only end up with half a box of unused parts. I'd recommend assembling the kit in stock form first. Once completed, use it for awhile until you've gotten you're money's worth; only after this should you even consider this transformation.

The next step, which I consider the backbone of the



# BEETLE

*Wild!*



conversion, is the Hot Trick\* Red Prince chassis. You may remember this from the "Project Frog" series because it's the same chassis. This chassis fits the Frog, Blackfoot and Monster Beetle. To adapt the Tamiya parts to the Hot Trick chassis, there's only about 30 minutes of disassembly on the

*(Continued on page 134)*

*From top: the heart of "Project Monster Beetle" featuring Trinity modified motor and 7-cell battery pack, Futaba Magnum radio and FP-S131S servo, and the awesome Tekin ESC190 electronic speed control; next, we have Hot Trick chassis prior to assembly; two of the eight Kyosho Option House shocks used on the Monster Beetle; and these CRP suspension arms along with the CRP steering blocks (not pictured), helped keep the front end together.*



T H E

# MONSTER

by MIKE LEE



*An almost-ready-to-run 2WD off-roader for the novice...with a few unexpected refinements.*

**A**S MOST of us have seen recently, our model cars have gotten a lot better. They're not only better built, but are far more sophisticated. For the experienced driver/mechanic, the assembly of a modern car is not much of a problem. For the newcomer, it's a different story.

Fortunately most car manufacturers have come to recognize this problem, and the age of ready-to-run cars has arrived. The subject of this review is a

nearly-ready-to-run car from Ishipla and distributed by Condor Trading\*, the Monster two-wheel-drive off-roader.

The Monster is a basic little model for the novice driver. It's nearly ready to run out of the box, because all the hard work is done and the easy, basic work is left for the new driver.

**THE KIT.** The Monster features a four-point independent suspension with oil-filled shock dampeners, adjustable dampener springs, single A-frame front suspension arms, and single trailing arm



at the rear. All running gear is mounted to a durable plastic tub chassis, which the radio gear also rests. Control is with a standard two-channel radio and 6-cell battery.

Because the basic construction is already done, there's not much to assemble. What little there is starts with the tires and rims. The rims are three-piece items to which the tire is mounted. You'll have a tough time inserting the internal rim into the tire, but it will fit, thanks to the nice elasticity of the tires. Five sets of screws and nuts hold the rims together. Mounting the tires on the rims is next, and it's so simple, I won't bother with a description.

The radio gear comes next. I used a Futaba\* Magnum Junior with S-28 servos. The Monster has sheet-metal servo mounts which bolt to the floor of the chassis. There is room for adjustment, making it possible to fit most any servo.

There is plenty of room in the Monster for two servos, the receiver, and a 4.8-volt flat battery pack with switch, there is not room for a square pack. A BEC would help out. The six-cell pack fits in the transverse position on the chassis, using a band of plastic tape wrapped around the ends to retain it in the chassis. The battery will connect into a standard Tamiya-type connector to the speed controller.

The speed controller features three speeds in forward and one reverse. Stepping is accomplished using standard ceramic resistors, which are bolted to the aluminum portion of the rear chassis. The speed controller is already wired and ready to go, a welcome sight for the newcomer. However, you'll still have to use a soldering iron on the Monster.

The standard 540-type motor which comes with the Monster is already wired for hook-up to a speed controller. But, as I mentioned above, the speed controller is hooked up as well, so you get to unhook one of the two and connect the other. I decided that the lead wires from the controller were longer than the motor wires, so I used the controller wires. Either way, as long as the polarity is correct, all will be fine. At worst, the car will simply run in reverse.

The Monster is well protected both front and rear. Large bumpers are provided to ward off tail-gate crashers or brake failures. A rollover-type antenna, more commonly found on road racing cars, is standard on the Monster. It will work to good effect in popping the

Monster back on its feet during the inevitable rolls that make off-road racing fun.

The tires on the Monster are medium spiked rears, and ribbed with light spikes in the front making them well suited for dirt running. Oilite bearings are found throughout the car—make sure you keep them well oiled. A clear polycarbonate body rounds out the car.

I painted my Monster body with Pactra Racing Paints. This is an easy-to-use paint, either sprayed or brushed. The colors are quite accurate and colorfast. The paint itself bonds to the plastic shell and is very much scratch-off proof.

**RUNNING.** Now for the hill and dale test. Running the Monster is a pleasant ride because this car displays good power with adequate speed in the dirt. In fact, the combination of power and speed is well-suited to the neophyte driver. Handling is pretty positive for a basic off-roadster, achieving good tire traction in loose soil. The suspension keeps things in fair contact with the road, although it is not on a level with all-out racing cars. Nor was it meant to be. For the novice, it's plenty good.

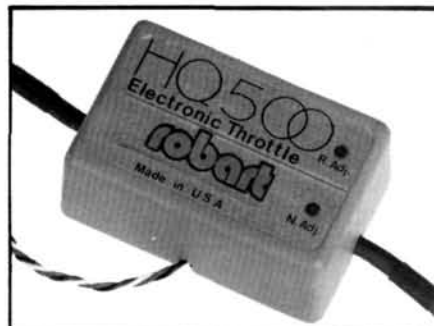
Steering the Monster was a positive point in the off-road handling, providing the car with accurate directional ability. The large front bumper allowed the car to plow through heavy brush and larger rocks with little complaint. It will get high-sided on the big rocks if you don't keep up the momentum, but we're talking 1/10-scale boulders here. Full-size cars wouldn't attempt it unless the driver was out to do himself in. The Monster hangs right in there in the rough, proving that it will take the abuse that off-road lovers crave.

Overall, the Monster makes a fine little off-roadster for novice drivers. While it's a simple and easily maintained car, it's a hardy little thrasher capable of taking on the out-back for hours of fun. As usual, the Futaba 2 Magnum Junior was up to its peak performance, allowing all fun and no fuss. If you're in the market to test the waters for a dirt car, consider the Ishipla Monster. It's the cutest little newcomer in a long time.

*\*The following are the addresses of the companies mentioned in this article:*

Condor Trading Co. Inc., P.O. Box 3479, Mission Viejo, CA 92690.

Futaba Corp. of America, 555 West Victoria, Compton, CA 90220. ■



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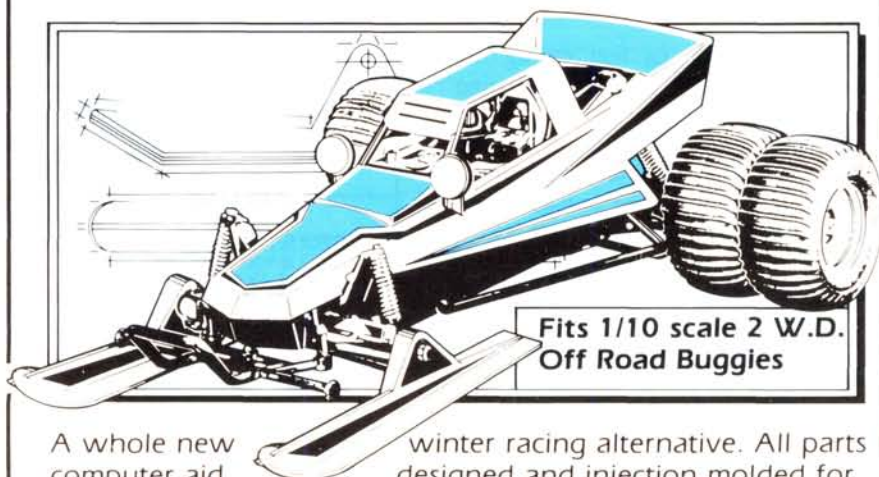
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## RACE STRATEGY

(Continued from page 70)

replace them whenever they seem the slightest bit weak. An R/C electric motor is a "radio noisy" little machine, so you must do your best to isolate it from interfering with your radio reception. A lot of what appears to be bad driving can be interference from your own motor.

Check the rear suspension as you did the front suspension. Give the car a short run on a paved surface to be sure its working correctly and you've got the car race prepped.

Now how about preparing yourself? It is a fact: just as you get your car ready for a race, you must prepare yourself.

People who drive full-size race cars spend a lot of time getting into and staying in shape. They need all the edge they can get and one of the ways they've found to get an edge is to start a race with high levels of stamina and strength. I've known drivers who have lost 10 pounds on a hot race day; you can't do that and finish well if you start at less than your best.

Let's take a look at the requirements of a competitive racer. Without good focus a driver can't stay on the track or execute

(Continued on page 90)

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(Continued from page 90)

a neat pass. A driver lacking focus never

knows where he is in a race. Driver's with low focus seem to crash when there's really no reason; they just "lost it."

If your stamina is low, by the time the

mains are run you'll have used up your best efforts. Have you noticed that many drivers can do well in heat races but never seem to "have it" in the mains? They may just lack stamina. The excitement, working in a hot sun (or cold) all day, the tension, all drain strength.

If a driver can't control his/her emotions, that driver gets rattled easily, which, in turn, destroys focus. A slip by a turn marshal finishes the race effort for many drivers. They get so mad, they come apart at the seams—and lose again. Useless anger is foolish.

Shaky drivers rarely win. Usually drivers become shaky when they're tired, very nervous, or have had too much sugar or coffee.

To drive well, we need to see reasonably well. One of the main problems is the bright sun. A good investment is a pair of quality sunglasses. Besides protecting your vision, it's more relaxing to drive when you don't have to squint and strain to see your car. Along with your sunglasses, get a hat with a bill or brim that shades your eyes from direct sunlight.

Finally, be sure your brain is in gear before racing. To a large extent, this is a

(Continued on page 98) 3)

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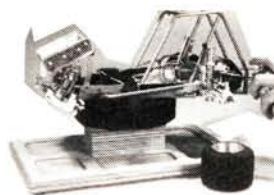
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## RACE STRATEGY

(Continued from page 96)

hobby/sport that requires practice and forethought. Many times a slower car wins because the driver out-thought his/her opponent.

Everything we've been talking about is interrelated. Each affects the others, so anything we do that benefits one, benefits all. Race prepping your car and giving yourself a personal tune-up go hand in hand. If you're overlooking either of these, you're not giving yourself the best

chance to win.

See you at the track.

Dick Brinton, c/o *Radio Control Car Action*, 632 Danbury Rd., Wilton, CT 06897. ■

## BIG BRUTE

(Continued from page 24)

dampening effect—have coil-over springs that are too soft, but I've been told the problem has been corrected in production kits. I replaced the stock units with the Option House Gold long oil-shocks.

These shock kits come with soft, medium, and stiff pistons and springs and have progressive dampening like that on full-scale auto shocks. The stiffest spring, the gold- or copper-colored one, should be used on the Brute in the stiffest setting. The piston you use will depend on the viscosity of the oil you use. Too much dampening will toss the vehicle into the air too much. You want to let that suspension "work" on rough terrain. A little time spent in trial and error will be time well spent. Besides providing un-

(Continued on page 100)

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## BIG BRUTE

(Continued from page 98)

limited dampening combinations, these shocks have lots of travel and did allow for taking advantage of all the available throw in the suspension.

There's a new speed controller on the market from a manufacturer that's expert in making water- and dust-proof controllers, something that comes in very handy when running your monster truck in the mud; it's Product Design Inc. of Redmond, Washington. Years ago I first came across these guys at a trade show, where they had one of their boat speed controllers operating an electric motor in a fish tank. The thing worked flawlessly during the entire show. PDI has brought this watertight technology to their new Reverse Zeta, a controller with a fully proportional reverse and brake band that's just the ticket for heavy-metal monster-truck madness. Oh yes, Reverse Zeta can be used with seven cells.

Constructing the Big Brute is model ately simple. The part count is low. The one-piece frame has two, one front and one rear, add-on main housings to which the suspension components attach. These are simple two-piece split affairs with the rear housing the gear differential and the front empty; makes me wonder if a 4WD version of the Brute is lurking somewhere in one of the Kyosho laboratories.

Upon first inspection, I felt that the Lexan body was formed from a sheet that was far too thinly extruded for a monster truck. Evidently, the Lexan used is of very high grade, for after many rough-and-tumble photo shots in the wasteland, the body still showed no hint of cracking. That's even after I was commanded by Louis DeFrancesco Jr., the Ayatollah of radio controlla, "you must give the Brute the test in the 'Land of the Fat Boulders' and then you can go take your lunch hour unharmed." Of course I followed my orders. The Brute is still running and has needed only minor adjustments since initial assembly.

With a name like Big Brute, I thought it apropos to install a brute of a motor, the LeMans 360ST, a very torquey motor that has to be one of the best buys not only in the LeMans line but on the motor market in general (under \$20.00). This motor is based on a larger 550 can.

The running and photo sessions of the Big Brute was a whole lot of fun to be quite honest, probably due to the fact that the machine ran with virtually no problems save one: the huge center steering link I mentioned earlier did disappear into

(Continued on page 104)



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## **BIG BRUTE**

(Continued from page 100)

the enclosed chassis compartment, but I did have a lot of steering throw, more than I needed, which drew the center rod to its extremes. I recommend that you set yours up with less. On the other hand, it wouldn't hurt if Kyosho increased the length of the part a bit. With the ample suspension travel of the Brute and the highly versatile Option House shocks, the suspension "works" its way through ruts, stones and most other obstacles one would expect to find where one runs Monster trucks, keeping the truck in contact with the ground and upright.

It has been said, "Nothing escapes the wasteland!" Which may be true, but keep your eye on the horizon—that cloud of dust coming toward you might be a Brute. The Big Brute, a "Humungous" monster truck.

## **FX 10**

(Continued from page 52)

heavy-duty front bumper, low-profile grooved front tires, high-traction studded rear tires, a rear bumper/motor guard, and a three-stage speed control with forward and reverse. All of these features are part of its key to great entry-level durability and low maintenance.

One of the greatest attributes the FX 10 has is flexibility for the novice. But Futaba also has your future interests in mind. As your R/C skills improve and your hobby interests gain momentum, the FX 10 will grow with you. They've thought ahead and incorporated the mounting brackets for MOSFET high-performance features like their MC112B or MC111B electronic speed controls and made allowances for upgrading the car's suspension system with major-brand components; you'll even be able to directly bolt-in any of the high-performance .05 powerplants to give your FX 10 the speed of the big boys.

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## PROJECT OPTIMA

(Continued from page 74)

unexpected weight. Whatever, Project Optima responded very well indeed. I'm just sorry there wasn't a Turbo Optima around to witness the transformation of this Optima.

With the track test complete, I decided to give the Project Optima a little crash test (something many of us think about, but might not want to do).

The first test was a rollover that the Optima performed without a second thought. The second test was the immovable object test. Here's how the test is performed: at half-throttle the Project Optima is directed at an immovable object (in this case a track barrier made of wood) head-on. The Optima bounced straight back off that barrier as if I'd slammed the throttle into reverse. But with the help of the extra-wide bumper on the Optima, no damage was done.

The third and final test is the rear impact test. This is just the opposite of the immovable object test but in reverse. And this is where the Option House motor guard can prevent damage that may be irreparable.

(Continued on page 108)

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## PROJECT OPTIMA

(Continued from page 106)

Project Optima finished with flying colors, no worse for wear, and only a little overweight. Next in the Project Optima series: slimming down to competitive weight.

\*The following are the addresses of the companies mentioned in this article:

Kyosho: Great Planes Model Distributors Company, P.O. Box 721 Vibana, IL 61801.

Aristo-Craft/Polk's Model Craft Hobbies, 346 Bergen Ave., Jersey City, NJ 07304.

Sermos R/C Snap Connectors, Cedar Corners Station, Box 16787, Stamford, CT 06905.

Tecnacraft, 1335B Dayton St., Salinas, CA 93901.

McCallister Racing, 4827 Top Circle, Simi Valley, CA 93063.

Koh-I-Noor Rapidograph, Inc., Bloomsbury, NJ 08804.

## VARICOM MANX

(Continued from page 50)

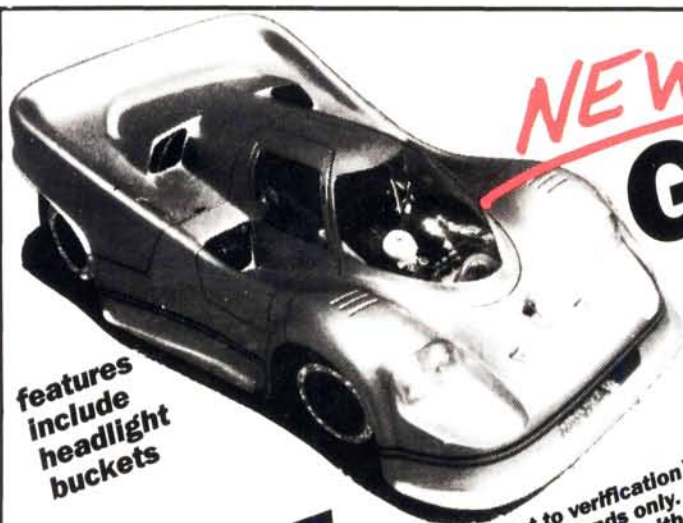
adjustment is to the camber setting. The initial setting should be at the 0° mark. This can be easily done by placing the car on a flat surface and standing a ruler upright next to each tire. Make sure that the tire is perpendicular to the upright

edge of the ruler. Make this adjustment on both sides of the car by turning the upper suspension struts either in or out, accordingly.

The next adjustment is to the toe setting. The front tires should be slightly toe-in (the front of the tires should be pointing inward). This should be only about 1° or 2° toe-in. After this you're ready to have some fun.

The body provided in the Manx kit is made from the industry standard Lexan for rugged, off-road use. Remember, painting Lexan bodies should be done from the inside to protect the painted

(Continued on page 111)



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**VARICOM MANX**

(Continued from page 108)

surface and ease body cleaning. I used a fluorescent orange water-based enamel from Koh-I-Noor\*, which proved to be very easy to work with and clean up. With a few kit-provided decals in place, it was time to put the Mugan Manx through its paces.

**RACING.** Acceleration and throttle response from the three-step speed con-

trol and the 540S Mabuchi motor was very nice. Having the differential driven by an 18-tooth pinion gave the Manx some nice top-end speed, certainly enough to keep any production-class

racer in a competitive position. The four, coil-over, oil-dampened shocks and the rear sway bar played a big role in helping the tires make sure footing in the dirt. But

(Continued on page 116)

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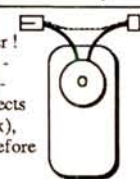
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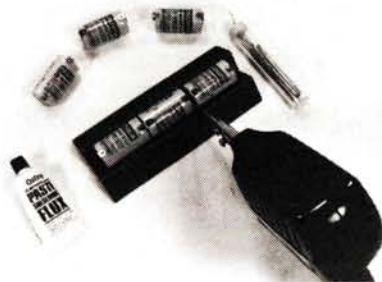
# What's New



## SERPENT 1/8-SCALE CARS

RPS Distributing offers two of Serpent's most formidable 1/8-scale race cars. The Quatro is a four-wheel-drive road racer that's available in standard or deluxe versions. The Cobra is a four-wheel-drive off-road racer. Both kits require a two-channel radio and a 21-size engine. Order No. 4004-E for standard kit; No. 40045-E for Mark IV Deluxe kit with two-speed transmission; No. 5000-S for Super-M Cobra Off-Road.

For more info contact R.P.S. Distributing, 1655 G. Mission Blvd., Pomona, CA 91766.



## BATTERY SOLDERING

Finally, the easy way to solder your batteries together. Hot Trick's jig is grooved to hold your batteries in place while you solder.

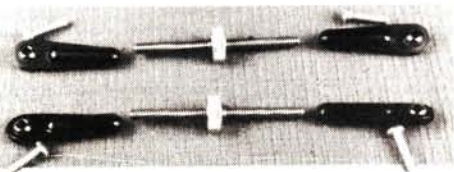
For more info contact Hot Trick Racing, 1157 Cusman Ave., San Diego, CA 92110.



## KOH-I-NOOR

Top Pelikan Top Color is a unique, high-gloss enamel for hobbies and crafts that is water soluble. Its main advantage is that any thinning or clean-up can be done with water. Once thoroughly dry, Top Color is impervious to water, grease, oil, salt, and soap.

For more info contact Koh-I-Noor Rapidograph Inc., 100 North St., Bloomsbury, NJ 08804-0068.



## BOLINK KIT

The Adjust-A-Link Kit from BoLink allows you to make quick steering adjustments on your R/C car without removing the linkage. Also may be used for front and rear camber adjustments on the RC10. Comes complete with ball joints and hardware.

For more info contact BoLink R/C Cars, Inc., 420 Hosea Rd., Lawrenceville, GA 30245/404-963-0252.



## SPRITE MAJOR

The Sprite Major is for all airbrush applications where fine atomization, delicate shading, variable control, and fine-line capability are needed. Optional low-flow nozzle, needle, and air cap are available to provide an identical output to the Sprite 1 ounce suction-fed color cup.



## PORT-A-IRON

The Port-A-Iron is a refillable butane soldering iron that heats in 30 seconds. It also has adjustable temperature and lasts about an hour per refill. Its heat output equals that of a 10 to 60-watt electric iron. Replacement tips are available in 1.2 to 4.8mm sizes.

For more info contact Miller R/C Products, P.O. Box 425, Kenwood, CA 95452.



## MODEL EXPO

The Marui Ninja from Model Expo is a 1/10-scale four-wheel-drive off-road car that features a radically styled aerodynamic body, double-wishbone-independent suspension, oil-filled coil-over shocks, shaft-drive, a Mabuchi RS-540S motor, and many other notable features.

For more info contact Model Expo, Inc., 23 Just Road, Fairfield, NJ 07007.

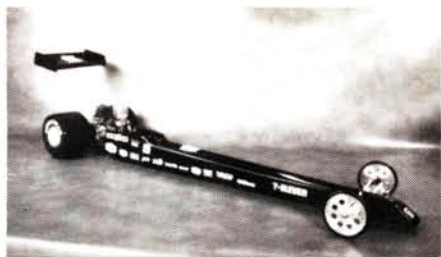


## McALLISTER

The Silver Bullet sprint car body from McAllister is designed to mate with the new breed of coat hanger-type chassis. Designed after the Coors Light Silver Bullet Outlaw sprint car.

For more info contact McAllister Racing, 4545-5H Industrial St., Simi Valley, CA 93063.





## ADVANCED ENGINEERING

The 1/8-scale Dragin' is a gas powered dragster from advanced Engineering that features a sidewinder engine mount, aluminum chassis and wheels, huge dense foam tires in the rear, O-ring tires in the front, and a unique belt-drive system. Available in three different versions: Pro Stock with T-Bird body, Funny Car with Ols Firenza body, and AA Fuel Rail with Custom Rail Body.

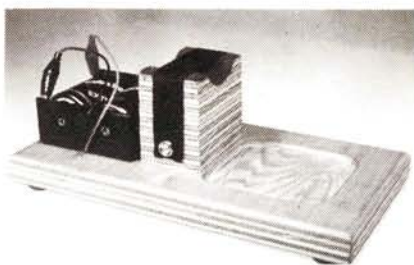
For more info contact Advance Engineering, P.O. Box 766, Woodland Park, CO 80866.



## EX-7 RACER

The EX-7 Racer from Hobby Shack is a two-channel pistol-grip radio that features self-diagnostic circuitry to constantly monitor battery and RF output with 3 easy-to-read LEDs. Other features include steering and throttle trim, servo-reversing, dual-position trigger, and a built-in charging jack to simplify NiCd battery conversion. System includes 2 PS-701 IC servos, battery box with switch harness, and a KR-288 receiver.

For more info contact Hobby Shack, 18480 Bandler Cir., Fountain Valley, CA 92728.



## MOTOR STAND

The Motor Maintenance Stand from SRT is ideal for performing routine maintenance on your R/C car motor. This stand is also ideal for breaking in a new motor. The stand features a strong plywood base with built-in parts tray, a felt-lined cradle with a Velcro strap to hold the motor in place, and a battery box that holds two D-cell batteries. Also includes two alligator clips for connecting to the motor.

For more info contact SR Transmissions, 25944 W. Rt. 134, Ingleside, IL 60041.



## FIVE STAR

Five star has introduced a new line of Ni-Cd battery chargers. This line features the #5500 AC/DC charger with adjustable current for charging 4- to 8-cell packs, the #5501 AC/DC charger for charging 6- to 7-cell packs, and the #5502 DC charger also for charging 6- to 7-cell packs. All chargers feature a flo-thru cooling system for heat ventilation, three fused inputs for safety, a reliable 15-minute time, and a full five-year warranty.

For more info contact Five Star Products, P.O. Box 304, Farmington, MI 48332 1-800-527-9070.



## ROYAL

The new Car Charger from Royal Products is an inexpensive overnight charger that's used to top-off a fast charge. The charger will also extend the life of your battery by slow charging after every 10 fast charges. For charging 6-, 7.2-, and 8.4-volt batteries.

For more info contact Royal Products Corporation, 790 West Tennessee Avenue, Denver, CO 80223-2875.



## KYOSHO BURNS 4WD

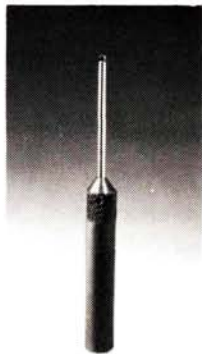
You'll set the track on fire with this hot new 1/8-scale Kyosho Burns four-wheel-drive car. The four-wheel, shaft-drive system is outfitted with front, rear, and center differentials for maximum power delivery. Double-wishbone suspension supplies extra-long wheel travel and oil-filled shocks absorb the off-road jolts. The aluminum flat pan chassis allows the Burns to slide over obstacles. Low-profile, pin-spiked tires with a new tread design provide excellent traction. Includes a clear Lexan body. Kit requires a 21-size car engine and a two-channel radio.

From Kyosho: Great Planes Model Dist., P.O. Box 4021, Champaign, IL 61820.

Descriptions of new products appearing on these pages were derived from press releases supplied by the manufacturers and/or their advertising agencies. The information given here does not constitute endorsement by **Radio Control Car Action**, nor guarantee of performance or safety by **Radio Control Car Action**. When writing to the manufacturer about any product described here, be sure to mention that you read about it in **Radio Control Car Action**.



# What's New



## MOTOR WRENCH

Hardened drill blank motor wrench fits metric motor-mounting screws. Will not strip. Order No. 6032.

For more info contact Trinity, 1901 E. Linden Ave., Linden, NJ 07036.



## G-FORCE

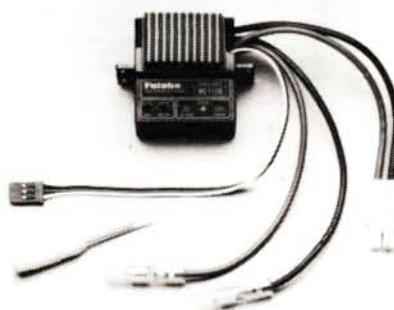
A new body designed for 1/10-scale off-road cars that reduces aerodynamic drag to a minimum. Also available from G-Force are multi-directional carbon-fiber sheets in various thicknesses and dimensions for fabricating lightweight shock towers, chassis plates, radio trays, etc.

For more info contact G Force Products, P.O. Box 1707, London W9 3RE, United Kingdom.

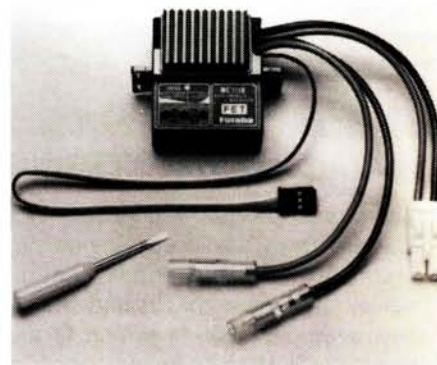


## FUTABA PRODUCTS

The FP-2GS System incorporates deluxe features, like a battery level meter, smooth, precision gimbals, and fine trim adjustment, that make the FP-2GS transmitter ideal for the entry-level R/C enthusiast. The system includes the new FP-R102GR receiver with BEC, new FP-S148 servos, battery box, and switch harness.



The new FP-112B Electronic Speed Control from Futaba is designed for use in 1/10- and 1/12-scale R/C cars. The 112 features adjustments for full throttle and neutral point with built-in LED check circuit, special finned heat sink, proportional forward and reverse with electronic brake, a 100 amp continuous and 400 amp surge current capacity, and mounting flanges on the case that allow you to mount the speed control in place of the old speed control servo in most kits.



The new FP-111B (MC11B) Electronic Speed Control from Futaba is designed for use in 1/10- and 1/12-scale electric cars. Special features include; built-in, LED check circuits, gold plated motor connectors, and a special finned heat sink. Mounting flanges on the case allow the 111B to be mounted in the same location as the old speed control servo in most R/C car kits. The 111B has proportional forward and reverse with an electronic brake, operates on a 6- or 7-cell battery, has a 130 amp continuous, and 500 surge current capacity, and weighs 2.16 ozs. without heat sink.



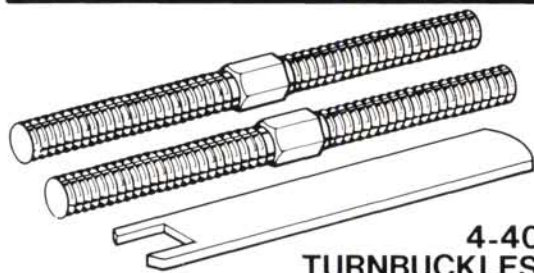
The new Futaba FX10 is a 1/10-scale off-road high-performance car that features an easy-to-assemble design that requires no special tools. The FX10 has four-wheel-independent suspension for all-terrain handling, a monocoque-resin racing chassis, sealed gearbox and differential, four-wheel coil-spring dampers, and four-link rear suspension. The FX10 chassis is covered with an easy-to-detail ABS body. Requires a 2-channel radio and a 7.2-volt Ni-Cd battery.

For more info on these products contact Futaba Corp. of America, 555 W. Victoria St., Compton, CA 90220.



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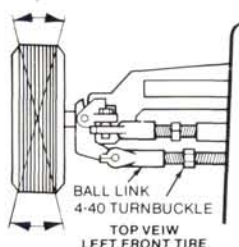


**4-40  
TURNBUCKLES**

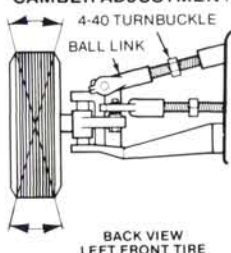
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## VARICOM MANX

(Continued from page 111)

I'd recommend that you increase front shock travel by putting a little less oil in the shocks than the manufacturer states. This will make the front suspension perform better on those rugged surfaces and bumps that many tracks have.

Running time of the Manx was very impressive. On one charge the Manx ran strong for a solid 15 minutes, not bad for a 540S and an 18-tooth pinion!

Good running time, "tricked-out" suspension, and flashy looks all in one neat package. The Mugan Manx will provide an R/C hobbyist of any age with a lot of fun!

*\*The following are the addresses of the companies mentioned in this article:*

Varicom Industries, 18480 Bandilier Circle  
Fountain Valley, CA 92728.

Koh-I-Noor Radiographic, Inc., 100 North  
St., Bloomsbury, NJ 08804. ■

## HOBBY LOBBY TORNADO

(Continued from page 33)

The access slot for the flywheel/starter disc in the chassis is a bit too narrow; it's better to find this out right at the start. If you went ahead and installed the engine first, it would only have to be taken out to do the enlarging. I did the necessary enlarging using a Dremel tool with various cutters including a House of Balsa\* Tuff-Grind cutting disc. The entire job only took about 20 minutes.

The motor mounts are pre-drilled for O.S., Picco, or Enya .21 buggy engines. I used a Picco .21 side-exhaust, which gave a good idle, very good top-end, and fantastic transition between the two. The Picco is also distributed by Hobby Lobby.

The holes in the chassis that accept the bolts which hold down the motor mount on my Tornado had to be slightly elongated toward the rear in order for the pinion and spur gears to line up correctly. Again, this was made short work with a Dremel tool. If you use a motor with a barrel carburetor, the linkage that comes with the car will work fine. If, on the other hand, you use a motor with a slide carb (as I did), you'll need to order the Carburetor Installation Kit from Hobby Lobby (part No. HLWF76BG).

Installing my trusty Hobby Shack\* EX-5 radio in the radio box was no problem. The stock servos with the EX-5 have plenty of thrust for larger 1/8-scale cars. The exploded diagrams which come supplied to show throttle and brake linkage setup seem too abbreviated at first—



but everything is there—examine them closely and you'll be okay.

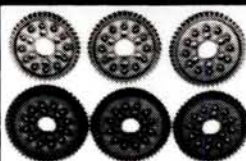
The only other thing I can nitpick about is the foam air cleaner. I prefer a cleaner with a paper element, but, then again, it's thrown in along with the muffler and header pipe; a package that if bought separately would cost quite a bit of money.

Two final points: you'll need to cut down the motor shaft for the flywheel/clutch assembly. Do this with the shaft bolt *on*. This way, if the cutting wheel on the Dremel leaves any burns on the shaft, they'll come off when you remove the bolt. Second, it might be a good idea (since the Tornado is pre-built) to apply some Zap-Lock to the nuts and bolts. These high-revving .21 engines can produce a lot of vibration that can loosen things up quickly.

Aside from these two points, the Tornado is ready to tear up the track.

I found the Tornado body quite appealing; the whole effect of the finished car with those low-profile tires really turns me on. I feel this body design begs for all kinds of creative touches. The wing really adds to the look of the car, but does little more than just that. Considering the

*(Continued on page 118)*



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## HOBBY LOBBY TORNADO

(Continued from page 117)

speed and weight of an 1/8-scale car, a wing of substantially larger area would have to be added.

PERFORMANCE. I had run the Picco in on a test stand with a balanced 8x4 prop. I used up three 6-ounce tanks of fuel and toward the end of the break-in session the motor was idling very well and the mid-range response was super. This is crucial if you don't want the

(Continued on page 124)

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# HOBBY LOBBY TORNADO

(Continued from page 118)

competition to get the jump on you coming out of a hairpin turn. Needless to

say, I expected it to perform great on the track—it didn't.

The motor died when going to full-throttle, as though it was running way too lean in the mid-range. I fiddled with the

adjustments a bit, but it was to no avail. I finally decided to see if there was a negative pressure problem in the tank by holding the fast-fill cap open with a screwdriver: the engine ran perfectly!

It turned out that the pressure nipple on the muffler hadn't been drilled through completely; with this fix all done, the car ran great.

A new piece of equipment was brought to the photo shoot that's going to be used in all track reports, a radar gun. No more guesstimations, my friends.

Before running the car in the dirt we did some speed checks at an old, sand-covered parking lot. It turned out this lot was slightly too short for absolute top-speed. I had to get on the brakes shortly after the engine came up on peak to avoid a high-speed spill into an adjoining stream. Still, the Tornado consistently clocked 40 mph+ speeds; these being reached quite quickly thanks to the throttle response of the Picco.

In the dirt, the Tornado immediately showed me handling that's best describe d as very comfortable. The car is extremely easy to get a grip on in the turns by working the throttle and steering together. Powering the car through sweepers and

(Continued on page 134)



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# HOBBY LOBBY TORNADO

(Continued from page 124)

decreasing radius turns is predictable and provides early warning when things might

go awry. The car seems to have damn good balance. Even with the springs set soft, the Tornado showed much less body roll than my Hunter, proving the sway bar wasn't just there for looks. All current

production models of the Hunter now feature this valuable sway bar.

The Tornado is the perfect stable mate for the Hunter, if you happen to prefer a body over a roll cage, as I do. The car is very solid in both handling and durability. During the photo session (and on subsequent outings), I've only had one mechanical failure, that being a front tire that came off because the hub bolt wasn't locked down.

The Tornado is appropriately named. Take a good look at the action photos, the car is at the eye of the twister, the culprit of the dust storm. Like a true Tornado, the Tornado car loves to stir up a lot of dust, dirt, and anything else in its path—this could include the competition.

*\*The following are the addresses of the companies mentioned in this column:*

Hobby Lobby International Inc., 5614 Franklin Pike Circle, P.O. Box 285, Brentwood, TN 37027.

House of Balsa, 20134 State Rd., Cerritos, CA 90706.

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## MONSTER BEETLE

(Continued from page 83)

Monster Beetle.

The parts required are the entire rear-

(Continued on page 136)

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## MONSTER BEETLE

(Continued from page 134)

end differential assembly with swing arms and dog bones, as well as everything from the suspension-arm brackets on the front end. Prior to assembly I installed a set of ball bearings from MRC in the rear end as well as the front wheels. To attach these to the Hot Trick chassis took about an hour, paying close attention to detail.

I recommend checking the fit between the chassis and the rear swing arms. In my case, the fit was too tight and caused the

(Continued on page 140)

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# MONSTER BEETLE

(Continued from page 136)

swing arms to bind. This was the result of five small humps that surround the

circular section of the A-arm that passes through the bracket on the Hot Trick chassis.

To cure this, use an X-Acto blade to trim these down only enough to allow the

suspension to move freely. On the front end I chose to go with a set of CRP\* replacement arms. These arms are made of stronger material than the original and have metal bushings molded-in where they ride on the screws. The original A-arms may have been able to do the job with one set of tires—but with two tires on each corner—a little extra insurance doesn't hurt.

To absorb the bumps, I chose to go with four pairs of Kyosho\* Option House adjustable shocks (when using the Hot Trick chassis, RC-10-type shocks must be used). These are some of the finest shocks available; they're tough, and they're infinitely adjustable with three different pistons and springs for each shock. I used Tamiya soft damper oil that came with the kit, together with the soft pistons and springs that came with the shocks. The reason I went with the "soft" setup is because there are eight shocks instead of four and you've got to remember that they don't support the weight of these monster tires, only the chassis weight. Combined, there is one set of long, and three sets of short shocks on the chassis.

I also replaced the steering blocks with a set of heavy-duty blocks from CRP. These are also made of a stronger material and provide added insurance that one of the wheels won't go south after taking a hard landing. On the end of each axle I used Design Ingenuity\* wheels. These are extremely heavy-duty and attach with the use of their adapter system. These rims are available in standard machined or optional high-polish finish.

For those of you looking to save a few bucks, Design Ingenuity also offers dual wheel adapters to bolt together two sets of Tamiya wheels.

The motor for this monster is appropriately known as the Trinity\* Monster Horsepower four-wheel-drive modified motor. Although the Monster Beetle is a two-wheel-drive, with the dual wheels it can use the torque of a four-wheel-drive motor to sling the extra set of tires. To supply power to the motor, I chose to use the awesome Tekin\* ESC 190 Electronic Speed Control. In my experience, this is the best speed control I've ever seen. It's the most proportional speed control from a snail's crawl to full-tilt and its performance is flawless. For the guidance system, I chose none other than the Futaba\* Magnum. This has always been my radio of choice when it comes down to business. To swing the dual wheels, I replaced the original S-32 servo with an S-31, which has more than double the



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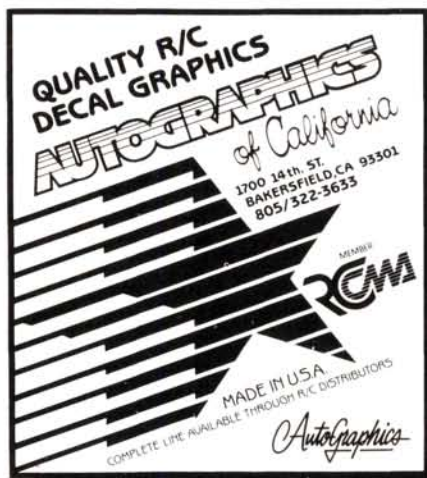
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torque and a very respectable transit time. The S-31 is connected to the wheels by a Hot Trick steering linkage. Last but not least, power is supplied to this hybrid monster by a Trinity Matched Sanyo 7-cell battery pack.

**CONSTRUCTION.** For the most part the construction end of "Project Monster Beetle" was routine. At times, however, I'd get so frustrated that I could almost feel my hair turning gray. I found out that you can't expect a project like this to fall together like an out-of-the-box kit. Depending how you choose to set it up, there will be a number of additional parts and hardware that are necessary to complete the project.

The body stand kit from Hot Trick is designed for the Red Prince chassis for either the Blackfoot or Monster Beetle, but it's not a perfect fit for either. In order to mount the body, you've got to use something other than the original equipment. Also, depending on how many shocks you want to use, you'll need additional hardware to fasten these to the chassis. What I'm saying is, don't expect to finish a project like this in the time it would take you to finish a standard kit. There will be quite a few trips to the hobby shop before you get all the parts to finish the job. But when the job is finished, you'll have the most awesome ground-pounding monster of them all!

**PERFORMANCE.** Prior to its maiden voyage all the standard radio checks were performed and all the hardware inspected. One thing that was missing was a servo-saver. I don't recommend going without one. Although the Futaba FP-S131S is the Sampson of servos, it's not hard to inflict some serious damage when using tires this size (not to mention two of them). To be on the safe side, pick up a large Kimbrough\* servo-saver; you need them to protect these expensive servos.

Sans servo-saver, I headed for the track to put this monster through the bump and

grind.

After placing the hybrid monster down, I turned on the radio system and hastily buried the throttle. Even with four tires in

the rear they couldn't harness the power of the Trinity and Tekin combo, tossing loose dirt in the air. Once hooked up, I

(Continued on page 143)

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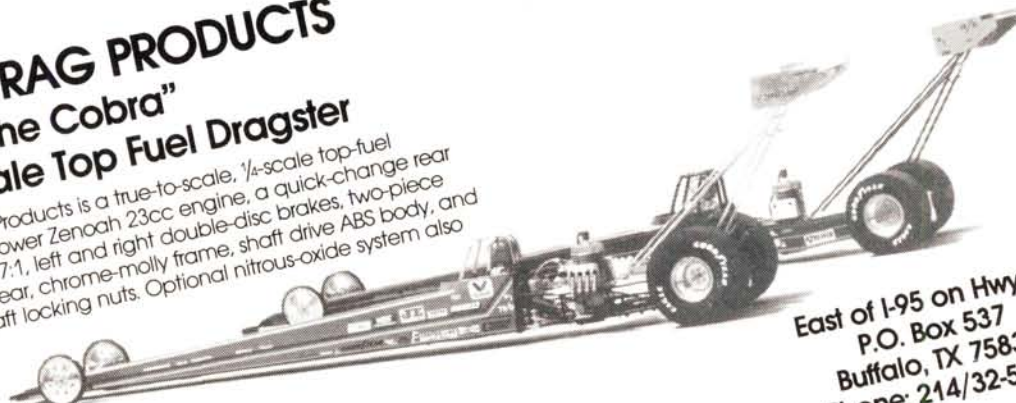
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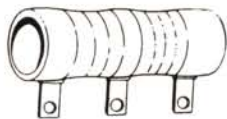


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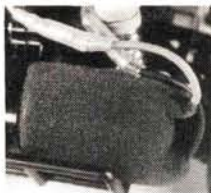
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## MONSTER BEETLE

(Continued from page 141)

went full-tilt for the giant double bumps; not because I had lost my sanity, but because I wanted to know if the suspension would hang-out after some air time.

The suspension seemed to work very well as long as I exercised a great deal of care to insure a proper jumping stance. I think it would be safe to say that the front end could soon become a pile of broken pieces in the event of a crippled jump approach or an untimely collision with an immovable object.

The cornering was a breeze since the beetle is wider than it is long with the double tires. In fact, you can take the steering wheel and go lock-to-lock without any fear of flipping. One thing I'd recommend is to only glue the inside front tires to the rims. This will allow the tire to slip on the rim when cornering to lighten the load on the servo. And because the rims are grooved to accommodate the tires, they won't slip off.

Once I put it through its paces at the track, I decided to head for some otherwise forbidden terrain.

I started out running the Beetle in the grass where many of my other cars have bogged down and gotten stuck from the long grass wrapping around the dog bones. The Beetle was an exception to the rule. Because of the oversize tires it simply floated across the lawn without the slightest hesitation.

After seeing how easy this was, I headed for the sandy beach where even the monster trucks breathe heavy. With the double tires, even the sand was no match for this Goliath; it simply cruised across the sand, digging in only when cornering or accelerating.

For the most part, this new breed of Monster Beetle performed very well. The only thing that might necessitate a few additional trips to the workbench is the dual front tires. Although these look way rad, they put a lot of stress on the front suspension. For those of you wishing to go with only dual rear wheels, Design Ingenuity also offers a set of single wheels that'll match the set of doubles in the rear.

However you choose to setup your Monster Beetle, I can assure you that the difference will knock your socks off!

\*The following are the addresses of the companies mentioned in this article:

MRC/Tamiya, Model Rectifier Corp., 2500 Woodbridge Ave., Edison, NJ 08817.

Hot Trick Racing, 1157 Cushman Ave., San Diego, CA 92110.

Custom Racing Products, 3250 El Camino Real, Atascadero, CA 93422.

Kyosho: Great Planes Model Distributors, P.O. Box 4021, Champaign, IL 61820.

Design Ingenuity Enterprises, Inc., P.O. Box 531, Tenafly, NJ 07670.

Tekin Electronics, 1027 Trepadora, Unit 3, San Clemente, CA 92672.

Futaba Corp. of America, 555 W. Victoria St., Compton, CA 90220.

Kimbrough Products, 1430 E. St. Andrews Pl., Unit E, Santa Ana, CA 92705. ■

## CUSTOM DOMINATOR

(Continued from page 80)

before. Now I can see why this car is a consistent winner over the world's finest.

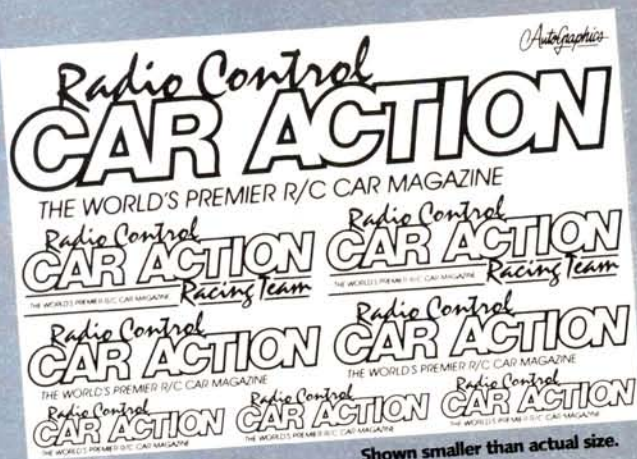
There is no doubt in my mind that the Dominator IV is the "unfair advantage" as many have stated. I'm a believer!

\*The following are the addresses of the companies mentioned in this article:

Custom Works R/C Products, 13631 Navajo Rd., Apple Valley, CA 92308.

Trinity, 1901 E. Linden Ave., #20, Linden, NJ 07036.

Futaba Corp. of America, 555 West Victoria St., Compton, CA 90220. ■



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**R/C Car Action Decals,  
632 Danbury Road, Wilton, CT 06897**



## PACESETTER GRIZZLY

(Continued from page 29)

60° transit time of only .22 seconds. The radio system I chose for the Grizzly 69° transit is the Futaba\* Magnum. This system not only allows infinite adjustment of the throttle and steering functions, but

also has a third channel as well as a "warm-up" switch that will cycle the throttle between two pre-selected adjustable points to keep the engine from stalling or loading up until it reaches running temperature. For the receiver, I recommend using heavy foam insulation. The standard double-sided servo tape is

capable of handling the job, but the tremendous vibration caused by the single-cylinder engine could eventually cause serious damage.

The linkage, gas tank, tire, and body installation follow. The whole process is relatively simple and quick. Most important, while assembling the Grizzly use caution. As I mentioned before, the single-cylinder engine generates a great deal of vibration, and if care is not taken to secure all fasteners with Loc-Tite (included in the kit) and allow proper drying time, they'll come loose. This is very dangerous when you consider that something as heavy as the Grizzly traveling at 50-plus miles an hour, will not only damage your expensive investment, but it could cause serious injury to whoever gets in its path. Take the time to complete the kit; don't rush out the front door as soon as you tighten the last bolt.

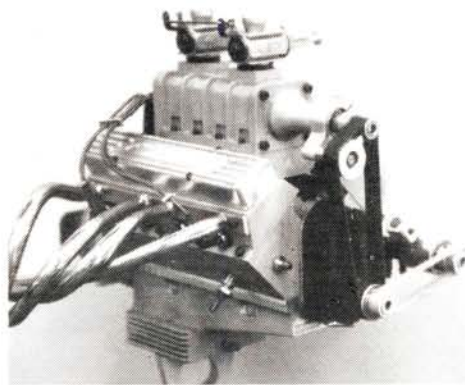
**PERFORMANCE.** Prior to starting the Grizzly for its maiden voyage, I had a friend watch the radio system as I walked down the field for a range check. This tells you if the radio works, and if so, at what range. This safety check is especially important. With a car this size, if it were to be put on the loose by a faulty radio, the dangers are obvious.

The gas tank was then filled with a mixture of regular gasoline and two-stroke engine oil. For the first few tanks it is a good idea to add a little more oil than the manufacturer recommends. In this case, the Quadra requires a 20:1 fuel/oil mix. For the initial start-up, I mixed the fuel with a 15:1 ratio in a two-gallon can to insure a proper mix. After a few tugs on

(Continued on page 148)

## Conley V-8—Smallest V-8 Production Engine

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## PACESETTER GRIZZLY

(Continued from page 146)

the starter to prime the engine, the Quadra came to life. After getting the engine warm enough to idle on its own, the same radio check was performed again to eliminate the possibility that the ignition system was causing any interference.

After putting the Grizzly through its paces at low speed, I picked up the pace around the yard. Because the Grizzly is not yet equipped with a differential, oversteer was very evident under acceleration. There is little that can be done about this, but Mike White of Pacesetter Products has informed me that Mike Kopchick of MK Engineering is in the process of

designing a sealed-gear rear-end with differential, as well as some suspension refinements that should make the Grizzly and all the other Pacesetter cars stick to the ground with ease. For the time being the rear wing kit will help a great deal.)

This short stint around the yard gave me the assurance that I needed to take the

(Continued on page 152)

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## PACESETTER GRIZZLY

(Continued from page 148)

Grizzly to some open ground and run it for all it's worth. The closest open area that was free of curious onlookers was a beach at the end of the street. All too soon I learned that the Grizzly was not home at all in the sand. It is not that it could not make its way through the sand, the problem was the exposed drive train and braking system. Because of the close tolerances in both of these systems, the large grains of sand became lodged in the drive-train, causing it to bind. The terrain that the Grizzly really eats up is the dirt. On the hard, packed dirt, the foam tires get a better chance to get ahold of some earth and transfer the power to forward motion. It takes a little while to get the feel of this 1/4-scale monster, but once you get the feel of it, it's hard to put the transmitter down.

The conservative porting of the Quadra is evident as the engine comes up through the rpm range. The engine comes into the power-band at a low rpm and goes right through to the top-end. This particular kit came equipped with the custom header, which sounds wild, but if you live in a congested area and want to keep your friendly neighbors, I would stick with the standard muffler. On the whole, the Grizzly is very simple to assemble and operate, so if you'd like to graduate to the big leagues and tame the wild Grizzly, contact your local dealer, if you think you can handle it.

*\*The following are the addresses of the companies mentioned in this article:*

Pacesetter Products, 930 W. Hyde Park Blvd., Inglewood, CA 90330.

Futaba Corp. of America, 555 W. Victoria St., Compton, CA 90220. ■

## MARUI NINJA

(Continued from page 56)

motor can be regear as needed by the mechanic, as the motor has an adjustable mount. Two pinion gears are provided for low- and high-speed ranges. Caution! Be sure *not* to omit the proper gasket between the motor and chassis; it protects the chassis from melting. At the front, the forward tranny gets pretty much the same treatment, differing only with the inclusion of steerable knuckle arms, again with castor control arms. Standard dog-bone-type axles are used at both ends for power transmission to the wheels.

The main chassis is next and features a tub-type chassis to hold the valuable radio equipment. Fitted to the Ninja chassis is a three-speed-forward and

single-speed-reverse speed controller. The unit is a definite departure from the speed controllers we are used to from the Orient. It is an enclosed unit that uses a linear output arm to connect to the servo. Installation is quite easy and getting the servo adjusted to the speed controller is much easier than the standard speed controllers normally found in other kits. The unit functions as advertised with no problems.

The radio is installed next. The Ninja is able to swallow virtually any standard-size radio equipment with ease. At first, we thought Marui was kidding, but it really does have a servo saver for the speed controller. Another servo saver is provided for the steering servo, making the radio a well-protected unit.

Now for the real workhorses of the car, the shocks. The Ninja features a four-point oil-filled suspension. Oil-filled dampeners are provided in the kit, and each will come with your choice of two dampening pistons. Each set will allow a soft or firm ride in the dampeners. The shocks are plastic-bodied units with twin seals and spring coil-overs. Oil is provided for the shocks, which proved to be just right when used with the firm-ride pistons. Spring coil-overs are mated to adjustable collars for spring-rate adjustment.

Mounting the shocks to the main chassis is no sweat, and from here, the Ninja begins to look pretty good. To finish off the running chassis, we assemble the wheels to the tires. The wheels are ABS-resin-type units of single-piece construction. The directional knobby tires are slipped over the wheels and lock in place using the grooves of the wheel. This provides an amazingly good grip to the tires; and no slippage occurs. The wheels are then mounted to the chassis with a single self-locking nut and are keyed in place on the axle. This finishes the rolling chassis.

**PERFORMANCE.** When it comes to the running, the Ninja won't disappoint. It runs pretty good for a four-wheel-drive on a standard 540 motor. With the complexity of a 4WD drive train, there comes higher drag. A hotter aftermarket motor is always a welcome addition.

The differentials in both axles effectively transfer power to the dirt no matter what the attitude of the car, but it isn't full-time four wheel drive. The shaft drive system of the Ninja is quite effective in operation, never giving a hitch in running. Top speed with a 6-cell pack and 540 motor is about 12 mph, with high-speed gears.

The Ninja suspension is a highlight. This plastic-bodied dampener system

worked very well, providing superb dampening to the chassis. The oil supplied for the dampeners seemed to work a little stiff at first but then worked out, to provide the good dampening action within a couple of cycles. Perhaps this calls for using a multiviscosity oil.

I strongly suggest replacing the nylon bearings with ball bearings. The stock nylon set has more play than we'd like to see and will most likely prematurely wear out.

Overall, the Ninja lives up to the claims of being a hot little four-wheeler. I experienced no mechanical problems during our review and no major flaws with the design. The Ninja could use a complete set of bearings from the inside out—to make it even more powerful! After all, the Ninja was considered one of the fastest fighters, and might even be developed into the finest dirt-fighter ever.

*\*The following are the addresses of the companies mentioned in this article:*

Model Expo, Inc., 23 Just Rd., Fairfield, NJ 07007.

Aristo-Craft: Polk's Model Craft Hobbies, 346 Bergen Ave., Jersey City, NJ 07304. ■

## O.S. MAX ENGINE

(Continued from page 17)

to control mixture strength from just below full throttle down to idling speed.

Fuel is metered, initially, by an upright needle-valve assembly that is mounted in an angled boss on the extended right side of the carburetor body that houses the mixture control valve. The mixture control valve can be screwed in or out, to lean out, or to enrich, the mixture at low speeds. This automatically takes care of the intermediate mixture strength. O-rings are fitted to the needle-valve and to the mixture control valve to prevent air leaks and maintain settings against movement through vibration. A horizontal spring-loaded throttle stop screw is provided for setting the idling speed and there is a rubber bellows to prevent dust or grit from entering the slide valve.

O.S. is the world's oldest (over 50 years) and largest model engine company and manufactures an enormous range of model motors, including some very expensive multi-cylinder four-stroke-cycle aircraft engines and the world's only production model Wankel rotary engine. Design and construction standards are invariably to extremely high levels, standards that are clearly demonstrated by the current Max-21SE-R.

Peter Chinn, c/o Radio Control Car Action, 632 Danbury Rd., Wilton, CT 06897. ■